

EPA Magnificent Ground Water Connection Unit Plan

Topic: Ground Water

Grade Levels: K-6

Instructional Setting: Classroom 5-40 students. (Computer or library access necessary with extension activities)

Academic Outcomes/Student Objectives:

Students will:

- Recognize that earth has a large amount of water, although very little is available for human uses (mostly from ground water)
- Understand how important it is that humans manage water resources carefully
- Demonstrate knowledge about ground water zones
- Explain how ground water moves through the soil and how it interacts with surface water
- Demonstrate knowledge about how ground water is extracted for use as drinking water
- Explain how water is recycled in treatment plants for human consumption
- Explain the water cycle and fresh water's role in it
- Recognize the importance of conserving water for citizens, communities, and societies

Process Skills Addressed: inductive and deductive thinking, persuasive writing, expository writing, vocabulary development, reading for information collection, critical thinking

Materials Needed: See each activity for specific materials; none are unusual.

Safety Precautions: This is only a consideration if instructor takes students on a field trip.

Total Time for Unit Plan: Ten days at 45 minutes per class period.

Pre-Assessment: Students answer standardized questions (multiple choice, short constructed response) about their background understanding of the uses and importance of clean water.

Post-Assessments: Service Project: Students will create a brochure either by hand or on Microsoft Publisher. This brochure will inform community members about the importance of clean water, the ways that citizens can keep local water clean, and popular conservation methods.

Standardized Assessment: Students complete an extended version of the Pre-Assessment that tests both literacy skills and science content that is taught throughout the unit.

Glossary: [link to Ground Water Glossary](#)

Standards Covered:

Colorado

SCIENCE STANDARD 1:

Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.

In order to meet this standard, students will

- ask questions and state hypotheses that lead to different types of scientific investigations *(for example, experimentation, collecting specimens, constructing models, researching scientific literature)*.

SCIENCE STANDARD 5:

Students know and understand interrelationships among science, technology, and human activity and how they can affect the world.

In order to meet this standard, students will

- investigate and describe the extent of human uses of renewable and non-renewable resources *(for example, forests, fossil fuels)*.

SCIENCE STANDARD 6:

Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

In order to meet this standard, students will

- identify and illustrate natural cycles within systems *(for example, water, planetary motion, geological changes, climate)*.

READING AND WRITING STANDARD 3:

Students write and speak using conventional grammar, usage, sentence structure, punctuation, capitalization, and spelling.

In order to meet this standard, students will

- know and use correct grammar and speaking in writing;
- apply correct usage in speaking and writing;
- use correct sentence structure in writing; and
- demonstrate correct punctuation, capitalization, and spelling.

READING AND WRITING STANDARD 4:

Students apply thinking skills to their reading, writing, speaking, listening, and viewing.

In order to meet this standard, students will

- use reading, writing, speaking, listening, and viewing to define and solve problems;
- recognize, express, and defend points-of-view orally and in writing.

Utah

SCIENCE STANDARD: [3050 - 01](#)

Students will compare and contrast changes in physical features of Earth over time.

3050-0102

Cite and categorize examples of Earth's natural resources.

- Describe where natural resources are found and how they are accessed and used.

SCIENCE STANDARD: [3050 - 03](#)

Students will understand the characteristics and management of water.

3050-0302

Cite examples of personal, recreational, industrial, and biological uses of water.

- Identify the different ways water is used.
- Using different media, communicate ways water is used.

3050-0303

Estimate amounts of water used daily by individuals, families, and communities.

- Identify a range of uses of water.
- Investigate amounts of water used for different purposes.

3050-0304

Based on gathered information, form an opinion and defend it regarding management of water resources.

- Identify issues regarding water usage that impact society or the environment.
- Research an issue of water usage that impacts society or the environment.
- Use appropriate supporting evidence to defend a position on an issue concerning water usage.

LANGUAGE ARTS STANDARD: [4050 - 06](#)

Students use concepts and conventions of print to create text.

4050-0601

Write in a variety of formats for different purposes.

- Choose a topic from personal experience, interest, literature, current events, and issues.
- Select format for a particular purpose and audience (e.g., newspaper article, editorial, dramatic script).
- Write informational text using main ideas, supporting details, and sequence.
- Sequence information using signal words and phrases (e.g., for example, consequently, since).

4050-0602

Build a spelling vocabulary for writing.

- Spell content words correctly.
- Confirm the spelling of unknown words.
- Write legibly.
- Use spelling resources (e.g., thesaurus, dictionaries, encyclopedias, peers, adults).

4050-0603

Recognize and construct sentences.

- Demonstrate correct usage of subject/verb agreement and verb tense.
- Construct sentences using basic sentence patterns (e.g., noun/verb, noun/verb/object).
- Combine ideas into compound and complex sentences.
- Apply the conventions of capitalization (i.e., sentence beginning, proper nouns, titles).
- Use commas in a series, in correspondence, and dates.
- Punctuate dialogue correctly.
- Use common abbreviations (e.g., Dr., Ms., months, days, locations, measurements).
- Demonstrate awareness of page format features (e.g., margins, indentation, headings).
- Use paragraphs to show a change in idea, place, or time.